Downstream Competition, Exclusive Dealing and Upstream Collusion
Preliminary Version

Marie-Laure Allain[*], Claire Chambolle[†] and Clémence Christin[‡]

Abstract

This paper analyzes the impact of exclusive dealing contracts between upstream and downstream firms of a vertical channel on the scope for upstream collusion. We consider a double duopoly framework and study upstream collusive strategies in a repeated game, alternatively in the benchmark where firms agree on simple linear tariff contracts, and when they may sign exclusivity contracts. We alternatively assume perfect competition at one level (either upstream or downstream) while there is imperfect competition at the other level. We show that when upstream competition is perfect, exclusivity contracts have no role on the scope for collusion. On the contrary, when downstream competition is perfect, exclusive dealing contracts may either facilitate or deter upstream collusion in comparison with linear tariffs, depending on the strength of competition at both levels. We show that when interbrand competition is soft, collusion is easier to sustain when producers can offer exclusive dealing contracts to retailers than when they cannot, whereas when interbrand competition is fierce, exclusive dealing contracts deter collusion.

Keywords: Collusion, Vertical Contracts.
JEL Codes: L13, L41.

1 Introduction

Although the role of market structure on the scope for collusion has been widely studied, less attention has been paid to the influence of the demand side. Yet, as noted in the

[*]CNRS, Economics Department, Ecole Polytechnique (Route de Saclay, Palaiseau, France, email: marie-laure.allain@polytechnique.edu) and CREST-LEI.

[†]INRA (UR1303 ALISS, 94205 Ivry-sur-Seine, France; email: chamboll@ivry.inra.fr) and Economics Department, Ecole Polytechnique.

[‡]Economics Department, Ecole Polytechnique (Route de Saclay, Palaiseau, France, email: clemence.christin@polytechnique.edu. We gratefully acknowledge support from the Ecole Polytechnique Business Economics Chair and from the French-German cooperation project “Market Power in Vertically related markets" funded by the Agence Nationale de la Recherche (ANR) and Deutsche Forschungsgemeinschaft (DFG) .

European Commission's Merger Guidelines, the stability of coordination in an industry is affected by vertically related sectors. The European Commission Guidelines on Vertical Restraints (2000) also mention that the reduction of inter-brand competition between companies operating on a market, including facilitation of collusion amongst suppliers or buyers, is one of the negative effects that may result from vertical restraints and which EC competition law aims at preventing.

Two recent decisions by the European Commission put forwards the links between exclusive dealing contracts and collusive practices amongst suppliers. In these two cases, the European Commission fined brewers for collusive practices. In the beer sector, most operators of a drinks outlet sign a "beer tie" with a brewer, consisting of an exclusive dealing clause for the purchase of a certain type of beer granted to a brewer in exchange for a payment.[1] In both cases, these "beer ties" have played an important role in the brewers' collusive agreements. In 2003, the European Commission has fined the two largest brewers in Belgium, Interbrew and Alken-Maes (a subsidiary of the French food group Danone) for collusion on the price of beers sold in supermarkets and in the hotels, restaurants and cafés ("horeca") industry. The brewers were condemned for having settled agreements to set prices and divide the market over the period $1993-1998$.[2] In particular, in 1994 after Interbrew had tried to break the exclusive dealing agreements existing between Alken-Maes and several drink outlets by selling them beer at a loss, they agreed explicitly to respect one another's exclusive dealing contracts on the horeca market. In 2001, the European Commission also fined five brewers in Luxembourg who had agreed on the mutual observance and protection of their exclusive dealing clauses.[3] The brewers had explicitly planned to pay one another penalties in case of a disrespect of this rule.

In these two cases, exclusive dealing contracts were part of the collusive agreements at the upstream level of an industry. This article thus analyzes the role of exclusive dealing contracts on the ability of upstream firms to collude both on prices and on a market sharing rule.

This paper is first related to the literature on collusion. Most of the theoretical literature on collusion focuses on industries in which firms sell their products directly to consumers. However a few papers study the incentives to collude in vertically related industry. Snyder (1996) considers the effect of the size of buyers on upstream collusion and shows that large buyers are more likely to deter collusion among their suppliers than small ones: his result is consistent with the analysis of competition authorities.[4] Nocke and White (2007) and Normann (2009) show that vertical mergers may facilitate upstream collusion. Finally,

[1]For instance, the brewer pays the lease for the drinks outlet or the drinks outlet licence.

[2]Official Journal of the European Union, $L200$, 07/08/2003.

[3]Official Journal of the European communities, $L253$, 21/09/2002.

[4]The European Commission's Merger Guidelines, for instance, state that "special consideration is given to the possible impact of [countervailing power] on the stability of coordination"-*Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings"*, Official Journal of the European Union, 2004/C 31/03, § 57.

Jullien and Rey (2007) focus on the effect of Resale Price Maintenance contracts (RPM) on the stability of collusion among producers. They show that by reducing the volatility of prices, the use of RPM facilitates the detection of deviation and thus favor upstream collusion.

To our knowledge, there is no paper focusing directly on the role of exclusive dealing contracts on the upstream incentives to collude. On the other hand, the literature devoted to the analysis of exclusive dealing contracts rather points out the potential exclusionary effects of these contracts. For instance the seminal paper by Aghion and Bolton (1987) shows that an incumbent and its customer may deter the entry of a more efficient entrant through an exclusive dealing contract. Segal and Whinston (1996, 2000) also show that when an efficient entrant needs a sufficient number of orders from buyers to cover its fixed cost of entry, exclusive dealing contracts between buyers and incumbent suppliers may deter its entry. In their model, Fumagalli and Motta (2006) take explicitly into account the fact that buyers are firms, who may resell the input they bought from their suppliers to final consumers. They show that intense downstream competition may remove the incumbent's incentive to deter entry through exclusive dealing contracts. These results suggest that exclusive dealing may have an indirect effect on upstream incumbent firms' incentives to collude. Indeed, a firm enters a market by cutting prices, which clearly pushes incumbent firms to react by lowering their prices thus destabilizing a potential collusion. By preventing entry, exclusive dealing contracts may thus indirectly facilitate upstream collusion. Finally, other works have focused on the dampening effect of theses exclusive contracts on competition (Lin (1990), O'Brien & Shaffer (1993), Besanko & Perry (1994), Dobson & Waterson (1996)). But, still, an analysis of the direct effect of exclusive dealing contracts on collusion in a dynamic setting is missing.

Our article studies a double duopoly vertical channel and alternatively considers the case of perfect competition upstream and downstream. When there is perfect upstream competition, i.e when goods are perfect substitutes, downstream outlets are differentiated. On the contrary, when considering perfect downstream competition, we assume that goods are imperfect substitutes. Following the traditional analysis introduced by Friedman (1971) on tacit collusion, we thus determine horizontal collusive equilibria that can be sustained by trigger strategies and study the effect of collusion on up- and downstream profits as well as on consumer's surplus. We analyze the effect of exclusive dealing contracts on the stability of collusion by comparing collusion, deviation and punishment profits when upstream firms may or not offer an exclusive dealing contract to downstream firms. When exclusive dealing contracts are not feasible, firms only offer linear tariff contracts to downstream firms. When exclusive dealing contracts can be offered, we assume that upstream firms may offer a menu of contracts to downstream firms consisting of linear tariff without exclusive dealing clause and an exclusivity clause with a two-part tariff. The fixed part of the tariff is *a priori* paid

by the upstream firm in return for exclusivity.[5]

In the richer set-up where upstream firms can offer exclusivity contracts to the downstream firm, we first show that exclusive dealing contracts affect the collusive strategies. When exclusivity clauses are available, there is a unique collusive equilibrium where upstream firms sign an exclusive contract with one of the downstream firms and respect one another's agreement: upstream firms also collude by sharing the market. Moreover, because of the fixed fee associated to the exclusivity clause, producers use efficient two-part tariff contracts which enables them to capture the whole industry profit. Exclusive dealing contracts here enhance the profitability of collusion.

Our results are then derived in the two extreme cases of perfect competition at one level. In the case of perfect upstream competition, collusive profits are higher when exclusivity clauses are available. Punishment profits are zero with or without exclusive dealing and the optimal deviation strategy consists in excluding the upstream rival and thus capturing the whole collusive profits in the two cases. Thus, when competition is perfect at the upstream level, exclusive dealing contracts have no effect on the stability of collusion.

If competition is perfect at the downstream level, although collusive strategies are still different on equilibrium, there is no downstream margin and thus linear contracts being efficient the collusive profits are identical with and without exclusive contracts. However, it is always costlier to deviate from collusion when exclusive dealing is available, for a producer has to offer an exclusive contract to its rival's retailer and cannot deviate by only cutting his tariff. Punishment profits are always higher when exclusive dealing clauses are available. Indeed, without exclusive dealing, the four goods are sold and perfect downstream competition ruins the producers profit. If exclusive dealing contracts are available, the competitive equilibrium is such that exclusive dealing contracts are signed and thus, retailers being asymmetric, interbrand competition preserves producer's profits. Studying the collusion stability, we show that the loss in deviation profit due to exclusivity is reduced when interbrand competition increases: in the linear tariff case, it becomes optimal for a deviating firm to exclude his rival's product from one or both outlets when interbrand competition increases. Thus we highlight that unless for fierce enough interbrand competition where exclusive dealing hinders collusion, exclusive dealing generally facilitates collusion.

The paper is structured as follows. In Section 2, we present the general framework. Section 3 offers a benchmark analysis in the case of linear tariffs. Section 4 describes a more complex framework where producers may offer a menu of contracts to each retailer, allowing them to choose between an exclusive dealing contract associated to a two-part tariff and a non-exclusive linear tariff contract. Finally, section 5 concludes and offers a discussion of potential extension of our results.

[5] In our model, downstream firms may also be ready to pay for an exclusive dealing contract.